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ROCKAWAY BOULEVARD SITE
ROCKAWAY BOULEVARD & NASSAU EXPRESSWAY
BLOCK 14260, LOT 1
JAMAICA, QUEENS COUNTY, NEW YORK

PHASE IA ARCHAEOLOGICAL RESOURCE ASSESSMENT

Prepared For:

Metropolitan Transportation Authority/
New York City Transit
Department of Buses
New York, New York

MTA New York City Transit

Prepared By:

The Louis Berger Group, Inc.
199 Water Street, 23rd Floor
New York, New York

September 2005

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MANAGEMENT SUMMARY

Involved State and Federal Agency: Metropolitan Transportation Authority

Phase of Survey: IA

Location Information
- Location: Rockaway Boulevard & Nassau Expressway
- Minor Civil Division: Queens
- County: Queens

Survey Area
- Length: N/A
- Width: N/A
- Depth: N/A
- Number of Acres Surveyed: N/A
- Number of Square Meters & Feet Excavated (Phase II, Phase III only):
- Percentage of the Site Excavated (Phase II, Phase III only):

USGS 7.5 Minute Quadrangle Map: Jamaica, NY

Archaeological Survey Overview
- Number & Interval of Shovel Tests: N/A
- Number & Size of Units: N/A
- Width of Plowed Strips: N/A
- Surface Survey Transect Interval: N/A

Results of Archaeological Survey
- Number & name of prehistoric sites identified: N/A
- Number & name of historic sites identified: N/A
- Number & name of sites recommended for PhaseII/Avoidance: N/A

Results of Architectural Survey
- Number of buildings/structures/cemeteries within project area: N/A
- Number of buildings/structures/cemeteries adjacent to project area: N/A
- Number of previously determined NR listed or eligible buildings/structures/cemeteries/districts: N/A
- Number of identified eligible buildings/structures/cemeteries/districts: N/A

Report Author: Gerard P. Scharfenberger, Ph.D.
Zachary J. Davis

Date of Report: September 2005

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I. INTRODUCTION

The MTA/NYCT Department of Buses is proposing to construct a new parking area for approximately 120 buses at a site located at the intersection of Rockaway Boulevard and the Nassau Expressway (Figure 1). The roughly triangular-shaped site is bounded by Rockaway Boulevard to the north and east, a Federal Aviation Administration (FAA) building to the west and the Nassau Expressway to the south. The Belt Parkway is located approximately 0.3-mile to the north of the site. JFK International Airport is located adjacent to the project along the south side of the Nassau Expressway. The project area entirely surrounds a Consolidated Edison switch gear facility, accessed by a paved path from Rockaway Boulevard. Outside of the ConEd switch gear facility, the project area consists of a grassy/semi-wooded surface with no visible structures or other surface features. The proposed project's Area of Potential Effect measures approximately 8.2 acres (357002.6 square feet) and excludes the area of the ConEd facility.

This project has been conducted in accordance with the instructions and intent of the New York State Historic Preservation Act of 1980, Section 14.09 as required under the State Environmental Quality Review Act (SEQRA), 6NYCRR Part 617 of the New York State Environmental Conservation Law. All research and reporting followed the standards established by the Cultural Resource Standards Handbook prepared by the New York Archaeological Council Standards Committee, the Guidelines for Archaeological Work in New York City prepared by The City of New York Landmarks Preservation Commission (LPC) and the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (Federal Register, 1983, Volume 18, Number 1990, pp. 44716-44742). The cultural resource specialists who performed the investigations meet the standards specified in 36 CFR 66.3(b)(2) and 36 CFR 61.

The purpose of the cultural resource assessment conducted by the Louis Berger Group, Inc., was to evaluate the archaeological potential of the site and to determine whether there are any historic structures on or near the site that are eligible for listing in the National Register of Historic Places. The investigation consisted of background research on the natural environment, prehistory, and historical development of the project site, as well as a field reconnaissance. Background research was conducted between August 22, 2005 and August 30, 2005 included examination of historical maps, secondary histories, relevant cultural resource studies, deeds and the county soil survey. Archaeological site files were reviewed at the New York State Museum and the New York State Historic Preservation Office (NYSHPO), both in Albany. Deeds and county survey records were examined at the Queens County Register. The field reconnaissance was conducted on August 30, 2005.

Mr. Zachary Davis, an RPA-certified (Register of Professional Archaeologists) archaeologist, served as Principal Investigator for this project. Background research was conducted by Dr. Gerard Scharfenberger, Ph.D., RPA, and Ms. Tracey Newman. The report was written by Dr. Scharfenberger and Mr. Davis, who also assembled the report's graphics.

FIGURE 1: Project Area and the Area of Potential Effect (APE) *SOURCE: NYCMap 2005*

II. ENVIRONMENTAL SETTING

A. Project Setting

The proposed construction site is located in the Springfield Gardens neighborhood in the southwestern end of Queens County, New York (Figure 2). The proposed site currently consists of a grassy, partially wooded surface. The site is located just over 2.0-miles north of Jamaica Bay. A second, smaller body of water, known as Baisley's Pond is located just under a mile northwest of the project site. The site is bounded by Rockaway Boulevard to the north and east, the Federal Aviation Administration (FAA) facility and parking lot to the west and the Nassau Expressway to the south. The Belt Parkway is located approximately 0.3-mile to the north of the site.

B. Physiography

The project site is located in the Coastal Plain Physiographic Province of the Atlantic Coastal Lowland Landform. The site is geographically part of the Ronkonkoma and Harbor Hill morainal ridges (Schuberth 1968). Parent material within these ridges includes schist, granite, "inwood marble," and several other layers of metamorphosed shales, limestones, and several crustaceous sediments (Barlow 1971; Kieran 1971). The soils of the area are alluvial, situated in valley bottoms (Thompson 1977), and have excellent production potential in terms of agriculture.

C. Drainage

The site is situated on well-drained, low-relief terrain, with Jamaica Bay located approximately 2.2-miles south of the project site.

D. Modern Climate

The normal annual precipitation including melted snow is about 47.2 inches. The annual mean temperature is 53.4 degrees Fahrenheit. Temperature extremes range from 102.3 degrees Fahrenheit in late August to -14 degrees Fahrenheit in February (Kieran 1971). The average temperature range is 32.7 degrees Fahrenheit to 76.1 degrees Fahrenheit.

E. Plant and Animal Resources

Prior to European contact the Native Americans in the area of the project site subsisted on hunting of small game, fishing, collection of shellfish, and gathering of local plants. Cultivation of corn, local wild grasses, and tubers may have occurred prior to European contact, but this point is currently under debate. The first European explorers, Henry Hudson and Giovanni Verrazano, among others, noted (with some detail) the surrounding environment; they remarked on the great quantities of fish, small game, oysters (larger than they had ever seen), and waterfowl (Kieran 1971). The early European settlements of the seventeenth century imported many of the initial foodstuffs they needed, including domestic animals (sheep, cattle, horses, swine, and fowl), seeds, grains, and root plants. These new agricultural species suffered very few adaptive problems when transplanted to local soils. Along with these importations, however, came an unwanted invasion of foreign insects and fungi that later proved detrimental to native species (Barlow 1971; Kiernan 1971).

Early shipping settlements remained fairly self-contained, relying little on native resources. By the turn of the eighteenth century, as more towns were established, reliance on such resources increased. Local salt marsh grasses proved to be ideal feed hay for cows. Virgin stands of oak were cut and used in shipbuilding, house construction, and as raw material export (Barlow 1971; Booth 1859; Kieran 1971).

From 1700 to 1850 more townships were established and grew. The forest area diminished; all the local large game animals, such as deer and bear, were killed off and their habitat replaced by agricultural fields. The Revolutionary War destroyed much of the virgin forest in the New York City area, as most of the trees were used as firewood by Tory and

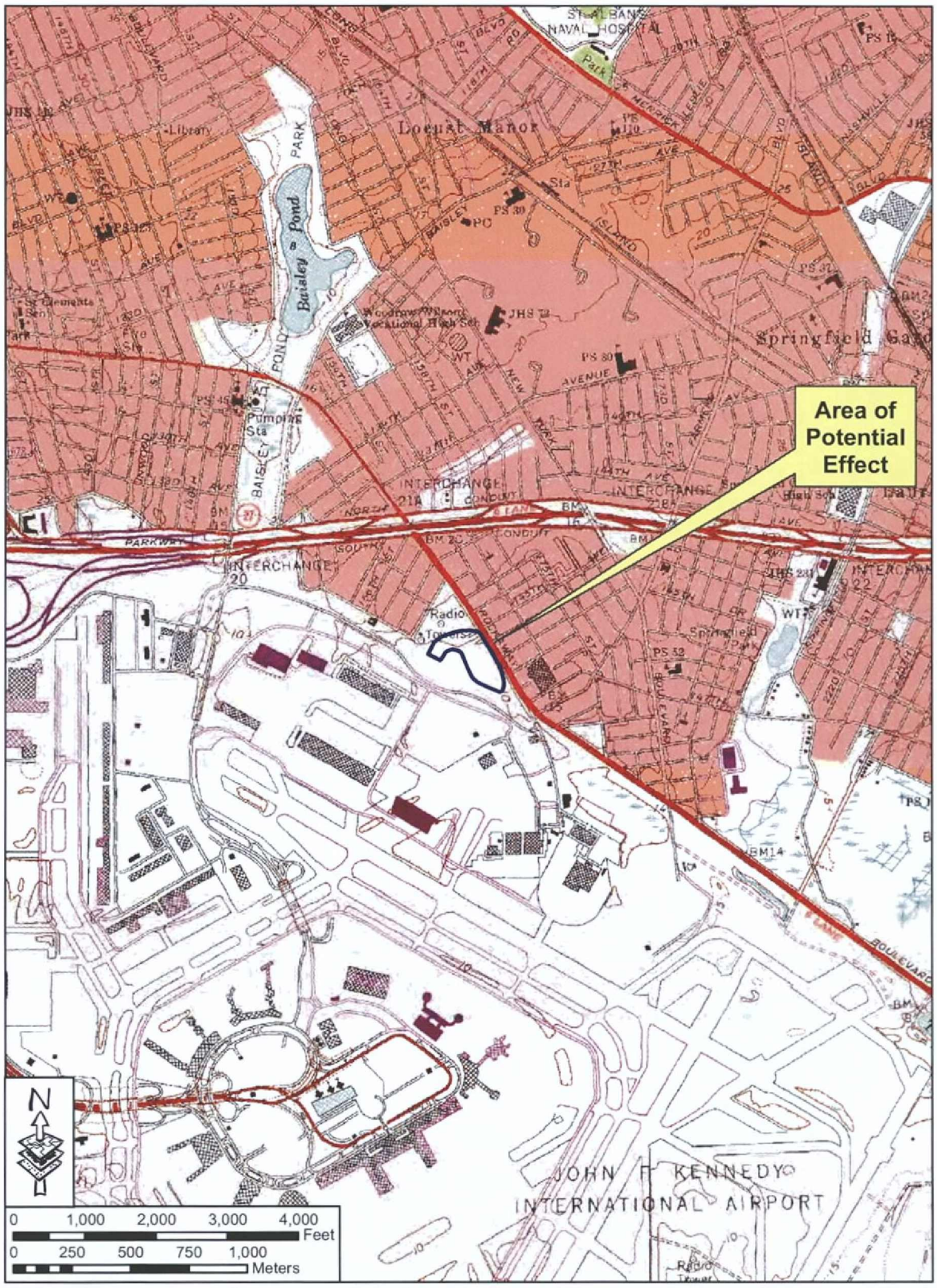

FIGURE 2: Overview of the Proposed Location for the Rockaway Boulevard Bus Facility Project Area

SOURCE: USGS Quad, 7.5' Series, Jamaica, NY, 1979

Hessian forces. What remained were small stands of trees often used as official landmarks for township divisions (Thompson 1918).

During the period of increased industrialization in the mid-nineteenth century, land use gradually shifted from agriculture to manufacturing and raw material processing. The tidal marshes, previously exploited for grasses, became ideal dump sites; much of what is landfill today was at one time tidal marshes and small rivulets.

F. Paleoenvironment

Based on data from fossil pollen remains and associated radiocarbon dates, the local environment during the earliest human habitation of the area can be generally characterized as periglacial. The remnants of the Wisconsin glacial advance stretched in an irregular belt almost one mile wide from Perth Amboy at the mouth of Raritan Bay in New Jersey across New York State in a northwesterly direction. Between 12,000 and 13,000 years before present (BP) the sea level may have been 300 feet lower than the present level, and the shoreline extended out approximately 60 to 90 miles from its present position (Kraft 1977). Consequently, river and stream systems and their plant and animal communities exhibited different configurations (Edwards and Merril 1977). Peat borings from the continental shelf indicate that the fairly level plain supported an open spruce parkland or spruce woodland environment, including pine, fir, and other vegetation (Sirkin 1976, 1977). The geomorphology of the area in combination with the effects of glaciation and subsequent sea level rise indicates that marine environments were probably not stable at this early date and could not have served as a primary focus of human subsistence activities (Custer and Stewart 1983; Edwards and Merril 1977; Newman 1977).

The glaciers began to retreat between 17,000 and 15,000 BP. Glacial scarring created a variety of developing habitats, including estuaries, salt and freshwater marshes, bogs, upland, and midslope communities. Glacial soils contained a wide diversity of particle size, which allowed good drainage and adequate water supplies for the developing plant and animal communities.

After the retreat of the glaciers, the coastal region of New York was favored by a set of ecological factors that probably contributed to its attractiveness to early human populations. These factors included a relatively long frost-free period, a greater annual reception of sunlight, and the tempering effects of a coastal environment. Brennan (1979:34) suggests that during post-glacial recovery deciduous forests penetrated the coastal region of New York and New England more rapidly than in the cooler and higher inland regions. Many of the cold-adapted animals probably followed the retreating glaciers northward and, in the case of mammoth and mastodon, became extinct. These creatures were replaced by deer, elk, moose, bear, and smaller mammals.

Pollen data show that the regional environment continued to change after glaciation. By 2000 BP environmental and meteorological conditions had approached those of the present, but southern tree species continued to migrate into the area (Barlow 1971).

III. SITE HISTORY

The European settlement of Jamaica dates back to 1655 when a group of settlers purchased the area from local Indian groups in exchange for, "two guns, a coat and a certain quantity of powder and lead" (HPI 1991:10). In 1660, a grant was patented which named the new settlement, "Rustdorp" (JMAC 1998:10). After the British took control of New York toward the end of the seventeenth century, the town was renamed "Jamaica" which was an Indian word for beaver (JMAC 1997:10).

From the seventeenth through the mid-nineteenth centuries, the project area and vicinity was predominantly rural, marked by farms and small villages. Most of the people who lived around Jamaica Bay were farmers, producing for their own consumption and, to a limited extent, for market. These farmers practiced a diversified type of agriculture, producing grains, vegetables, dairy goods, and meat. Although Jamaica Bay itself was highly productive, fin- and shellfishing and waterfowling were probably secondary pursuits for almost everyone who lived around the bay before the early 1800s. Then early in that century, some began to harvest the bay's marine resources commercially, shifting from farmers who fished to fishermen who farmed. By mid-century, oystering and clamming had become important industries in the area. Boat-building and shipping were also comparatively unimportant in the seventeenth and eighteenth centuries, with the majority of transportation taking place overland. Later, with the growth of population and fishing in the area, these activities became somewhat more important (Black 1981). From the middle of the nineteenth century onwards, improvements in roads and the introduction of the railroad, coupled with the growth of Manhattan, Brooklyn, and East New York, transformed the region both economically and topographically. These forces greatly modified the rural landscape of eastern Long Island as well as the size and shoreline of Jamaica Bay. The bay's marshy periphery was drained in some places and in others filled with solid refuse or with sand dredged from its bottom. Residential development took place on much of the new-made land, but other types of development, including construction of Idlewild Airport (forerunner of JFK International Airport), also took place. Until well into the twentieth century, Jamaica Bay was also a convenient outlet for raw sewage dumped by the urban region growing around it. Dumping and filling took their toll. Once acclaimed for the purity of its waters, in 1921 bathing and shellfishing were banned in the bay, and today it is roughly half the size it was in 1640 (Jamaica Bay Environmental Study Group 1971).

Finally, there is JFK International Airport, which is adjacent south of the project area. Located along the northeastern shore of Jamaica Bay, the airport presently covers an area of 4,930 acres, most of it created by filling the bay. During the 1940s, Mayor Fiorello LaGuardia recognized the need for a large facility to meet the growing demands of commercial aviation, and spearheaded the drive to build Idlewild Municipal Airport. The site chosen was a landing strip called Jamaica Sea Airport, which was surrounded by

> a huge marshland ... home for ... hundreds of squatters whose sagging sea-bleached homes rested uneasily with pilings that shifted with the tides. On one part of the marsh sat the Idlewild Golf Club, and just across a couple of sand dunes were some shacks and [the] landing strip ... (Arend 1981:32).

Completed in 1948 on 1,200 acres, Idlewild was the predecessor to JFK International Airport. The deep dredging of the Grassy Bay area of Jamaica Bay to supply fill for the original Idlewild facility and for later expansion severely affected marine life in the bay. The filling of 4,500 acres of marshland, coupled with the dredging of Grassy Bay, alone reduced the area of the bay by one-sixth (Jamaica Bay Environmental Study Group 1971).

Cartographic resources show the project area to have been relatively sparsely developed into the early twentieth century. The 1782 Whatman Map shows the project area to be largely unsettled and a wilderness outskirts to the urban center of New York City located to the west (Figure 3). The 1844 Coastal Survey Map shows the project area and vicinity around Jamaica Bay to have been subdivided into farm fields with sporadic development concentrated near the few existing roads (Figure 4). Structures appear to be present just north of the project area. This map also shows Rockaway Turnpike to be in place nearly in line with its present-day alignment. The 1866 Coastal Survey Map shows two structures slightly northwest of the project area in the vicinity of the present-day FAA building (Figure 5). A road that may have been the forerunner of 159th Street appears to be present by this time. The 1873 Beers Map shows several structures along the south side of Rockaway Turnpike (Figure 6). These include residences belonging to J. Allen and H. Spaulding and a third structure identified as a blacksmith shop. The Ridgewood Aqueduct is pictured

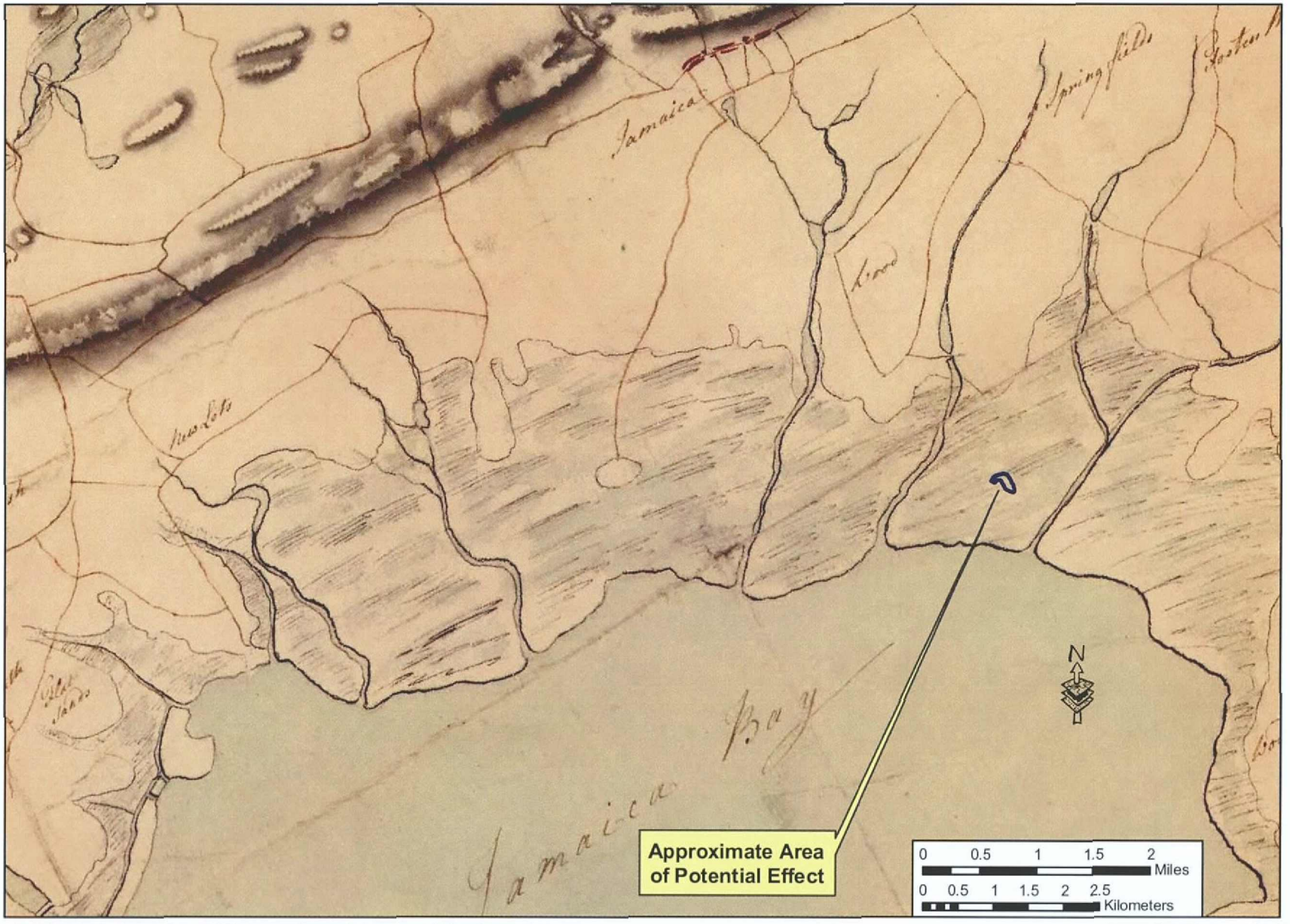

FIGURE 3: 1782 View of Western Long Island and the Approximate Location of the Rockaway Boulevard Bus Parking Facility APE

SOURCE: Whatman 1782

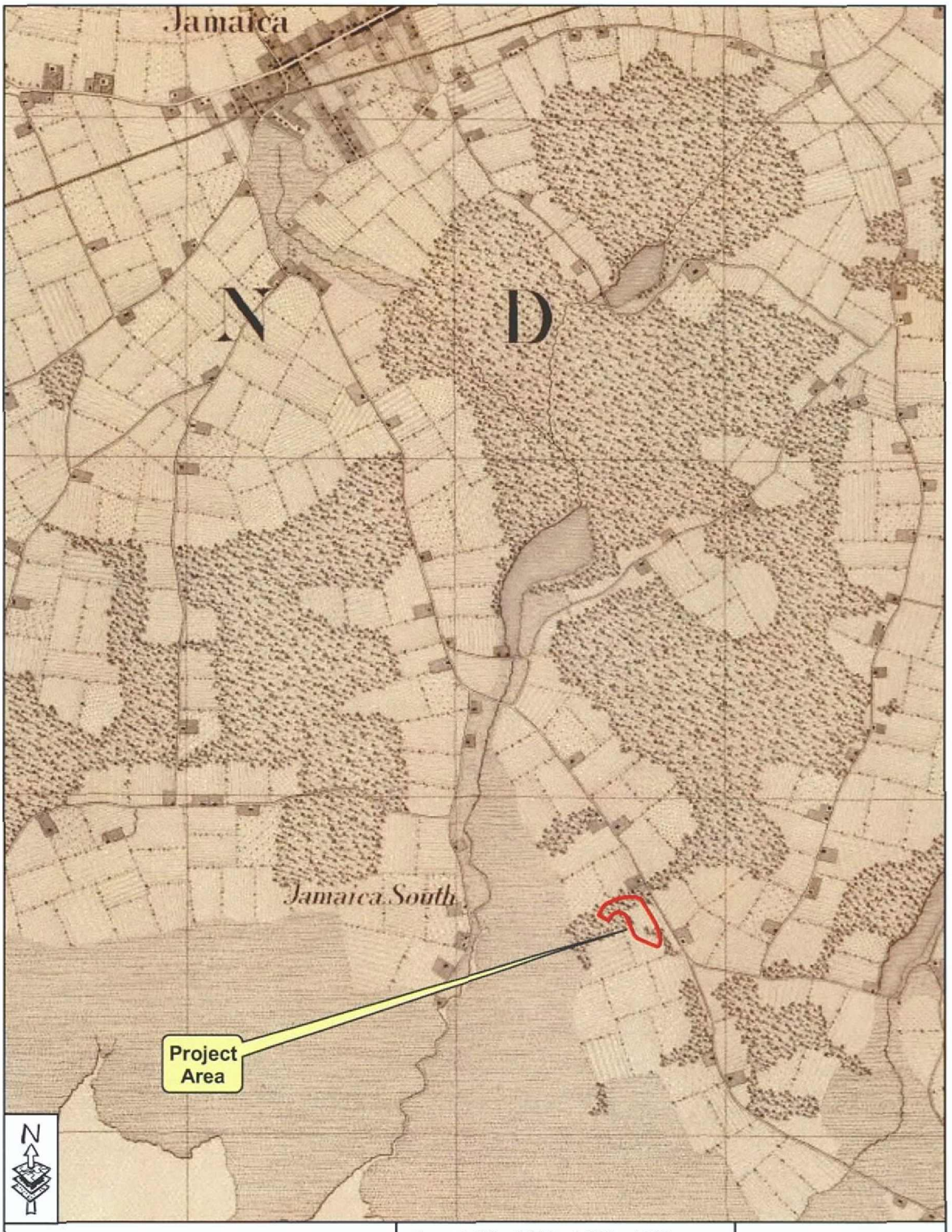

FIGURE 4: Project Area in 1844

SOURCE: U.S. Coastal Survey 1844

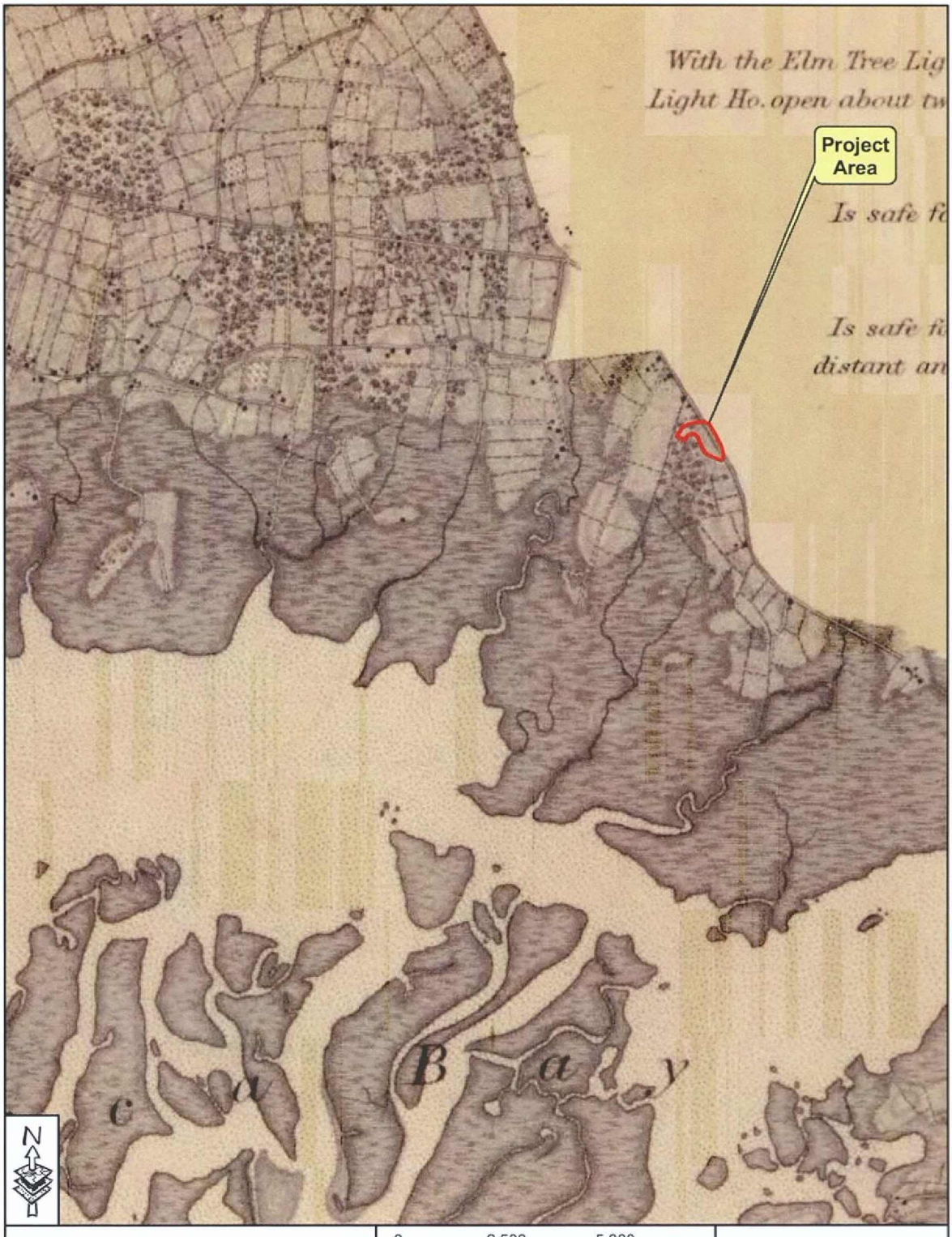

FIGURE 5: Project Area in 1866

SOURCE: U.S. Coastal Survey 1866

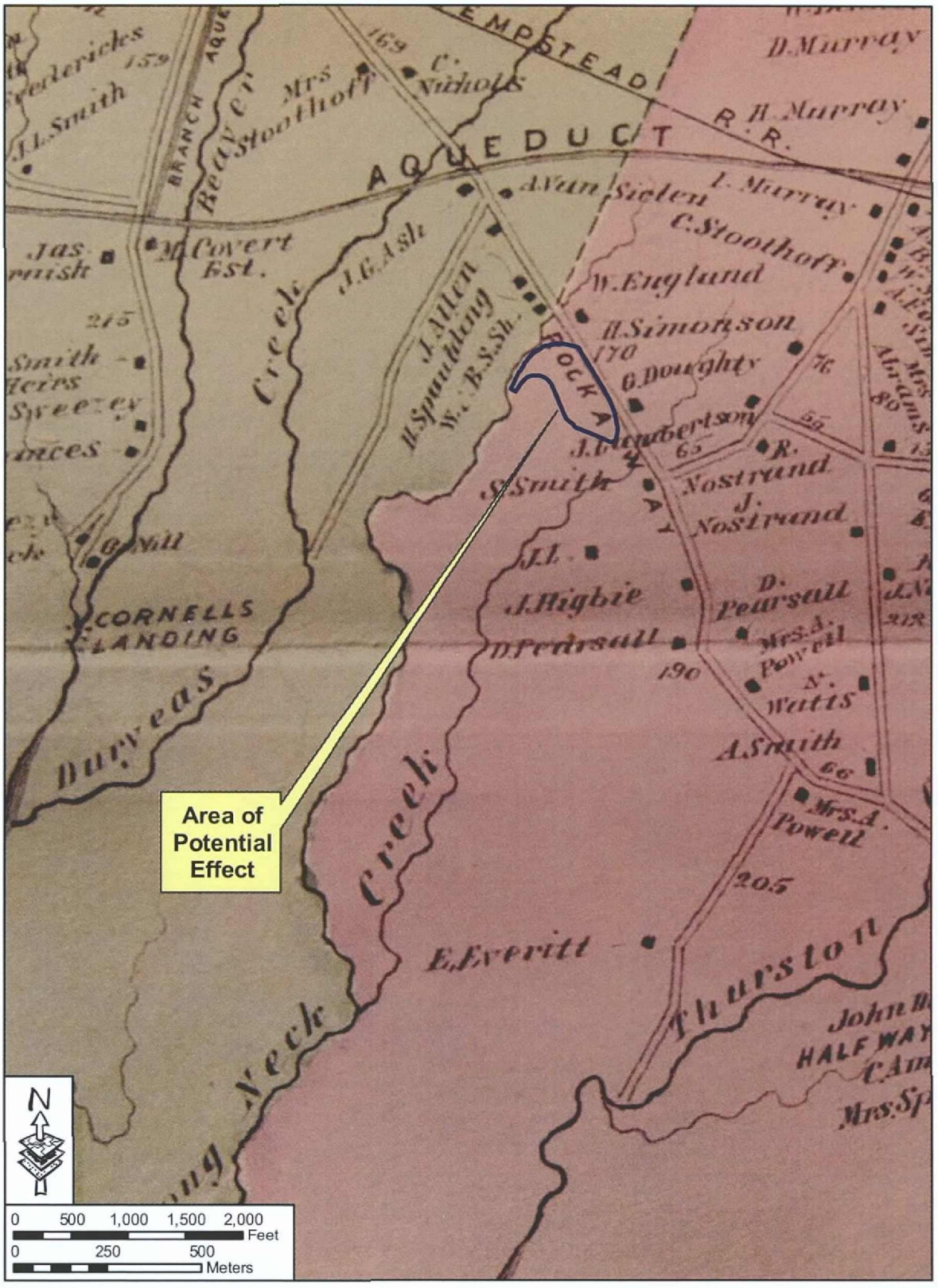

FIGURE 6: Project Area in 1873

SOURCE: Beers 1873

slightly north of the project area. Interestingly, a branch of the Long Neck Creek is shown running through the northwest edge of the project area and another branch is located just south of the project area. The Duryeas Creek is shown just to the north. These creeks are no longer extant, likely casualties of the infilling process associated with the construction of JFK International Airport. The 1886 Beers Atlas shows development increasing north of the project area (Figure 7). This map also lists an H.G. Spalding (sic) as operating a "carriage making and repairing" operation just north of the project area. The 1901 Hyde Atlas shows a street grid for a development called "Idlewild Park" located adjacent west of the project area (Figure 8). Three structures are depicted in the present FAA property near the intersection of 159th Street and Rockaway Turnpike, and another cluster of buildings are situated just north of the project area belonging to H.G. Spaulding. The listing on the 1886 map for H. Spalding (sic) suggests that one of these structures may have been a residence while the remainder may have served as commercial structures for a carriage making and repair business. The project area as shown on the 1886 map belongs to A. Foster. However, buildings that likely represent the A. Foster residence and associated outbuildings are depicted along the north side of Rockaway Turnpike. Therefore, it can be assumed that the project area was simply a vacant section of a large tract owned by A. Foster. The 1913 Hyde Atlas shows a large number of buildings within the Idlewild Park development (Figure 9). Structures are still present within the FAA property, however, their configuration and locations appeared to have changed from the 1901 map. The buildings on the H.G. Spaulding property appear unchanged from the previous map. This is significant, since it indicates that the Spaulding carriage and repair business may have still been in operation at a time when automobile use was growing rapidly and the shift from a rural to an urban infrastructure was intensifying in the boroughs outside of Manhattan.

Sanborn Insurance Maps are among the most detailed and informative cartographic resources available. Thus, an examination of those for the project area should provide a clear projection for the types of historic resources, if any, that may be present within the project area. The 1926 Sanborn Map shows the Spaulding complex still present along Rockaway Turnpike (Figure 10). A cluster of three structures is also depicted on the former Foster tract. One of these buildings falls within the project area along the western edge. Interestingly, three streets are also pictured cross-cutting the project area: Cogswell (formerly Jefferson), Deeson (formerly Colombia) and Excelsior (formerly Madison). It appears that the former street is still present, at least in part, in the form of a utility access road, however, no traces of Deeson or Excelsior Streets are visible within the project area. Interestingly, an examination of the 1930 Hyde-Belcher Map shows no evidence of the three structures on the Foster tract. The 1945 Hyde-Belcher map illustrates a number of profound changes to the project area and vicinity (Figure 11). Similar to the 1930 map, the cluster of three structures that included one inside the APE are shown to have been removed by this time. In addition, a small, one-story structure is pictured fronting Rockaway Turnpike near the northwest corner of the APE. It is unclear what function this building served, however, it's comparatively small size suggests it may be a storage building, rather than a business or residence.

The 1950 Sanborn Map shows the Spaulding complex unchanged from the 1926 map, however, the unidentified outbuilding is described on the 1950 map as a "coop," an indication of the slow transition from farming community to urban neighborhood that characterized the site during the middle of the twentieth century (Figure 12). A new cluster of structures is pictured slightly east of the Spaulding complex. One of these buildings is fronting Rockaway Turnpike and appears to be an automotive enterprise, possibly a gas station with a side elevation marked "ice dock." Two unidentified structures are located to the east of the automotive building and a storage building is situated off of the southwest corner, just east of the Spaulding coop.

It should be noted that block numbers for the project area that appear on early to mid-twentieth century maps conflicted with the corresponding block numbers found on deeds. Part of the confusion appears to originate from the acquisition of large tracts of land for the construction of JFK International Airport starting as early as perhaps the 1920s. As a result, small, individually-owned lots were subsumed into one lot and earlier numbers that may have been changed once or more prior, were changed yet again. Thus, information on specific owners, structures and possible site uses was unavailable through deed research.

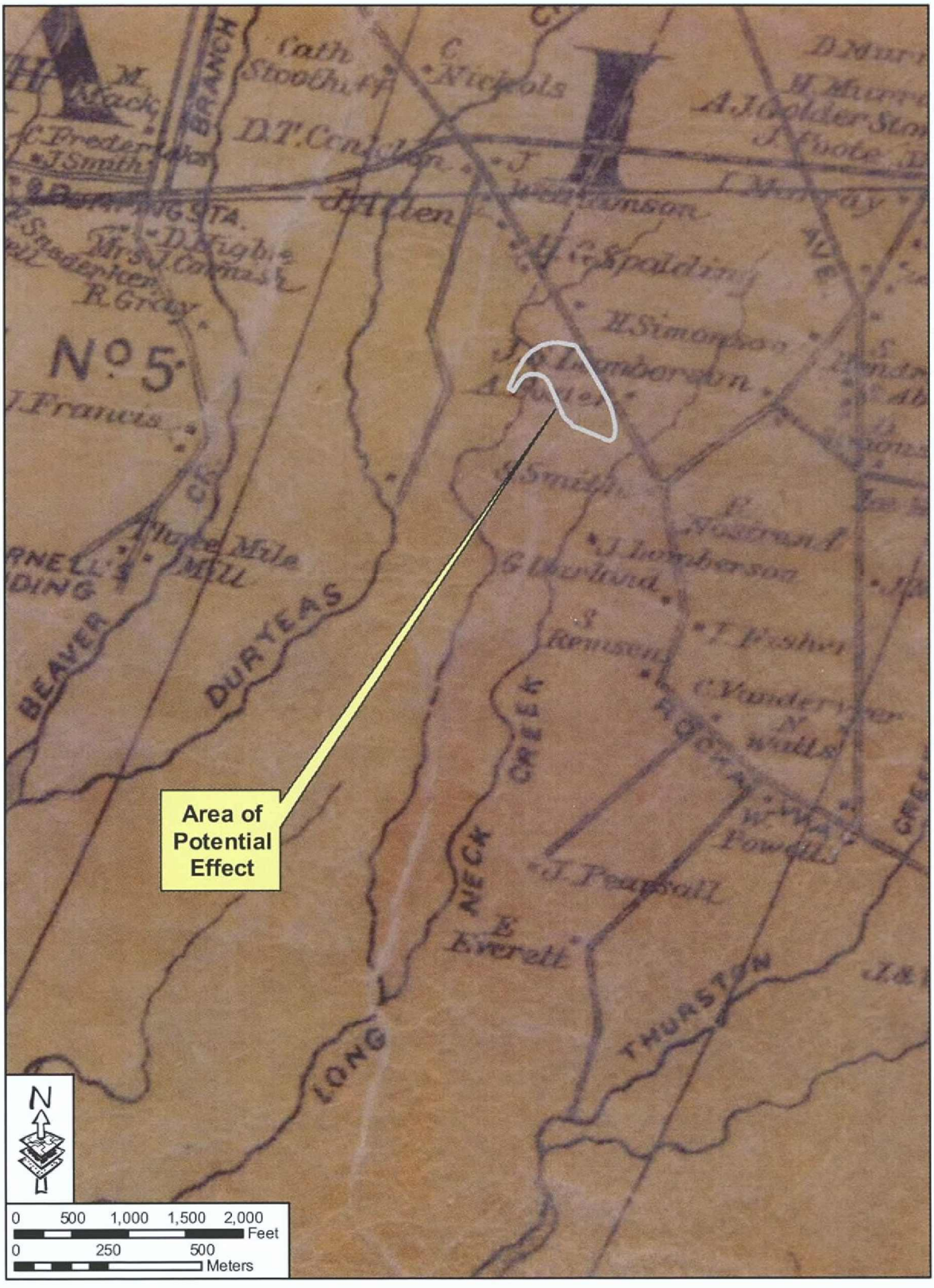

FIGURE 7: Project Area in 1886

SOURCE: Beers 1886

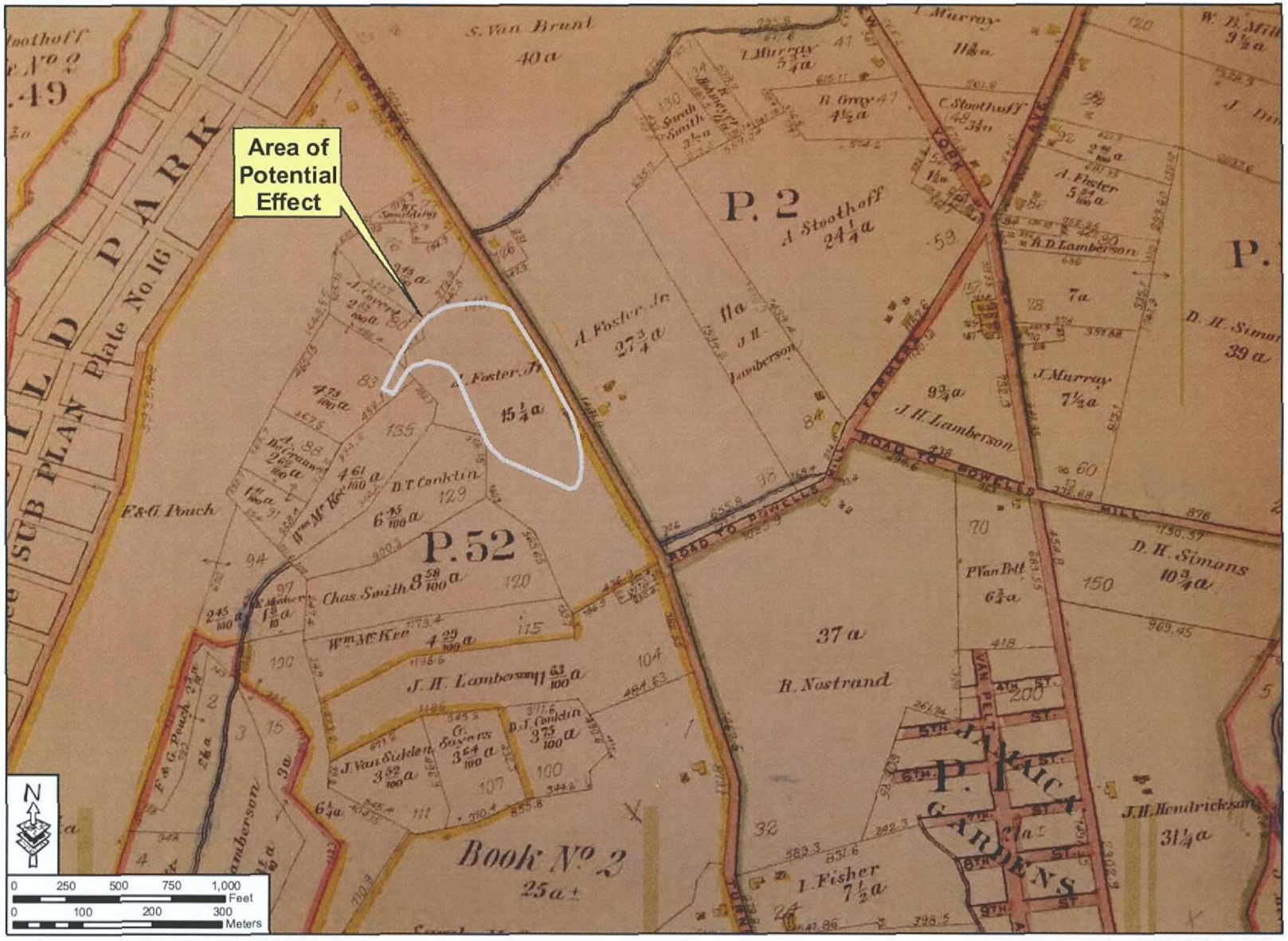

FIGURE 8: Project Area in 1901

SOURCE: Hyde 1901

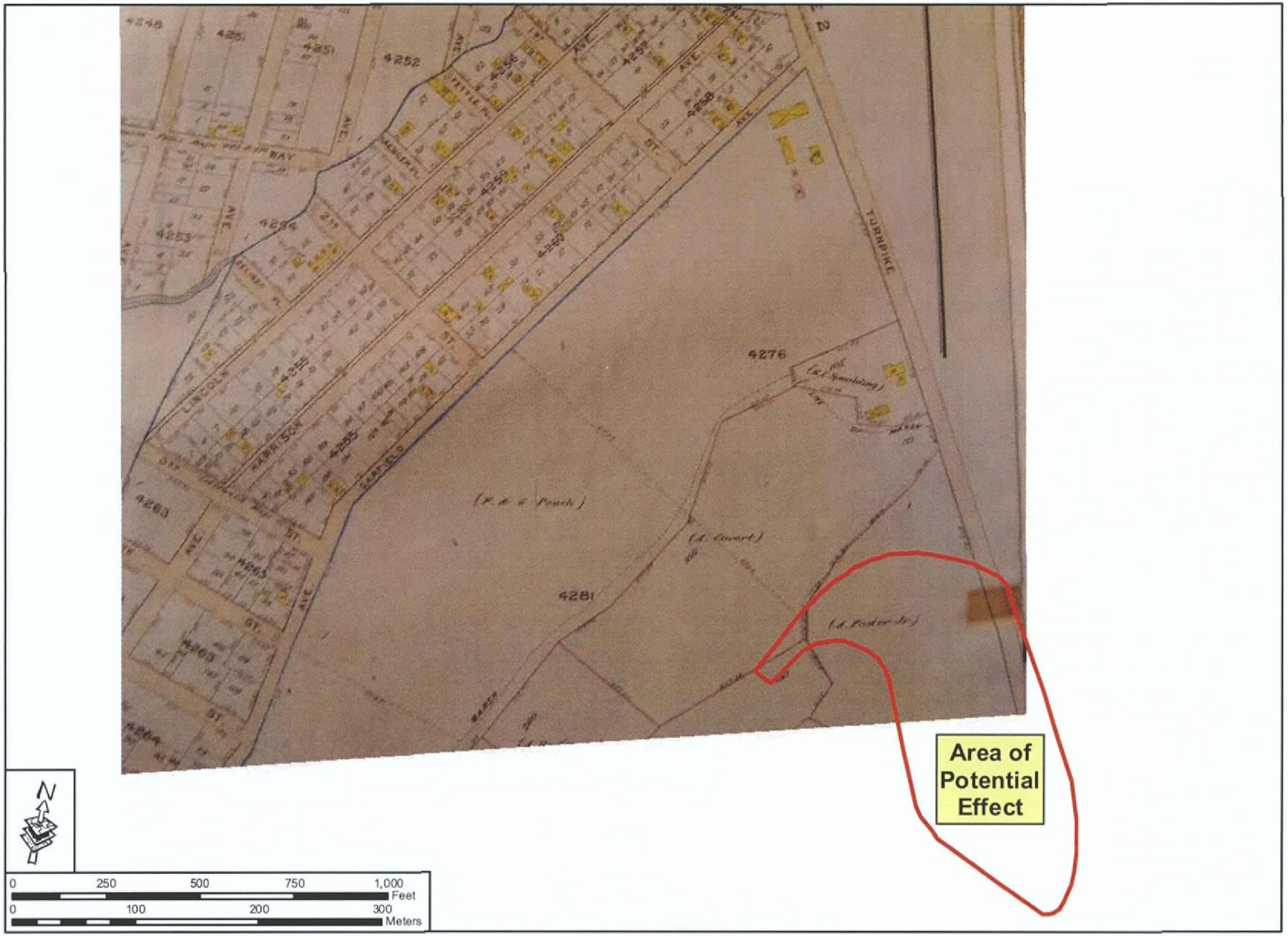

FIGURE 9: Project Area in 1913

SOURCE: Hyde 1913

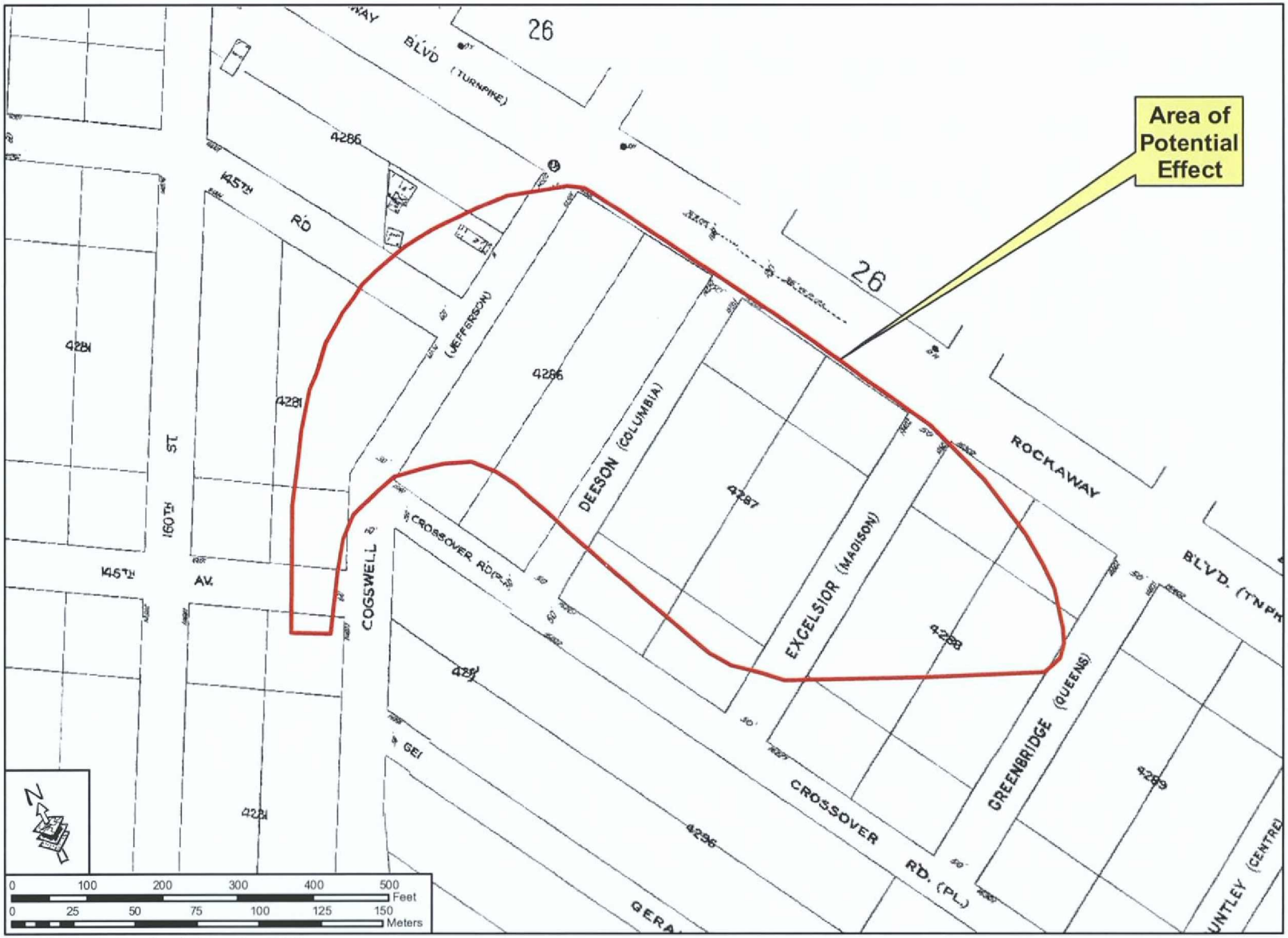

FIGURE 10: Project Area in 1926

SOURCE: Sanborn 1926

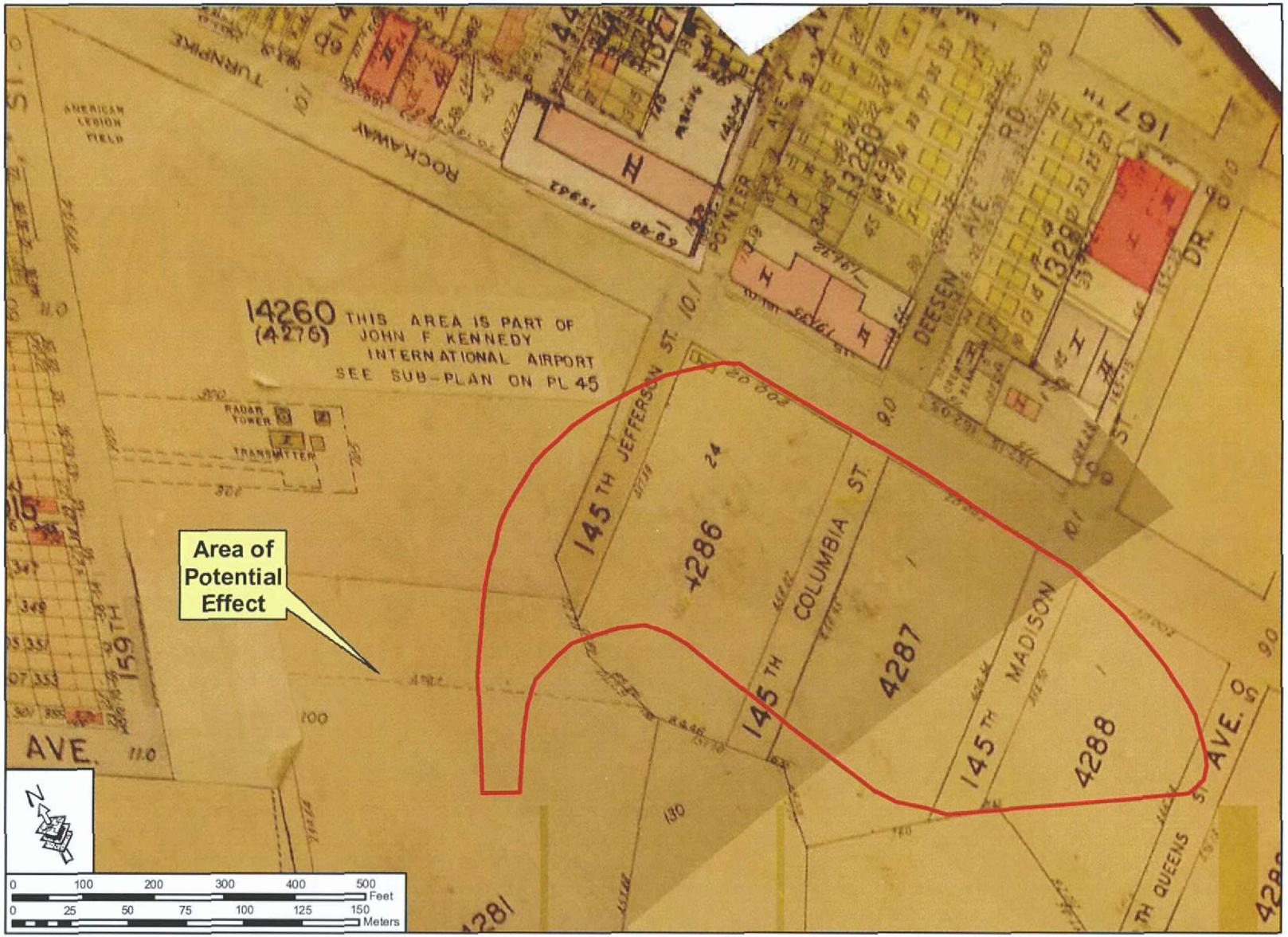

FIGURE 11: Project Area in 1945

SOURCE: Hyde 1945

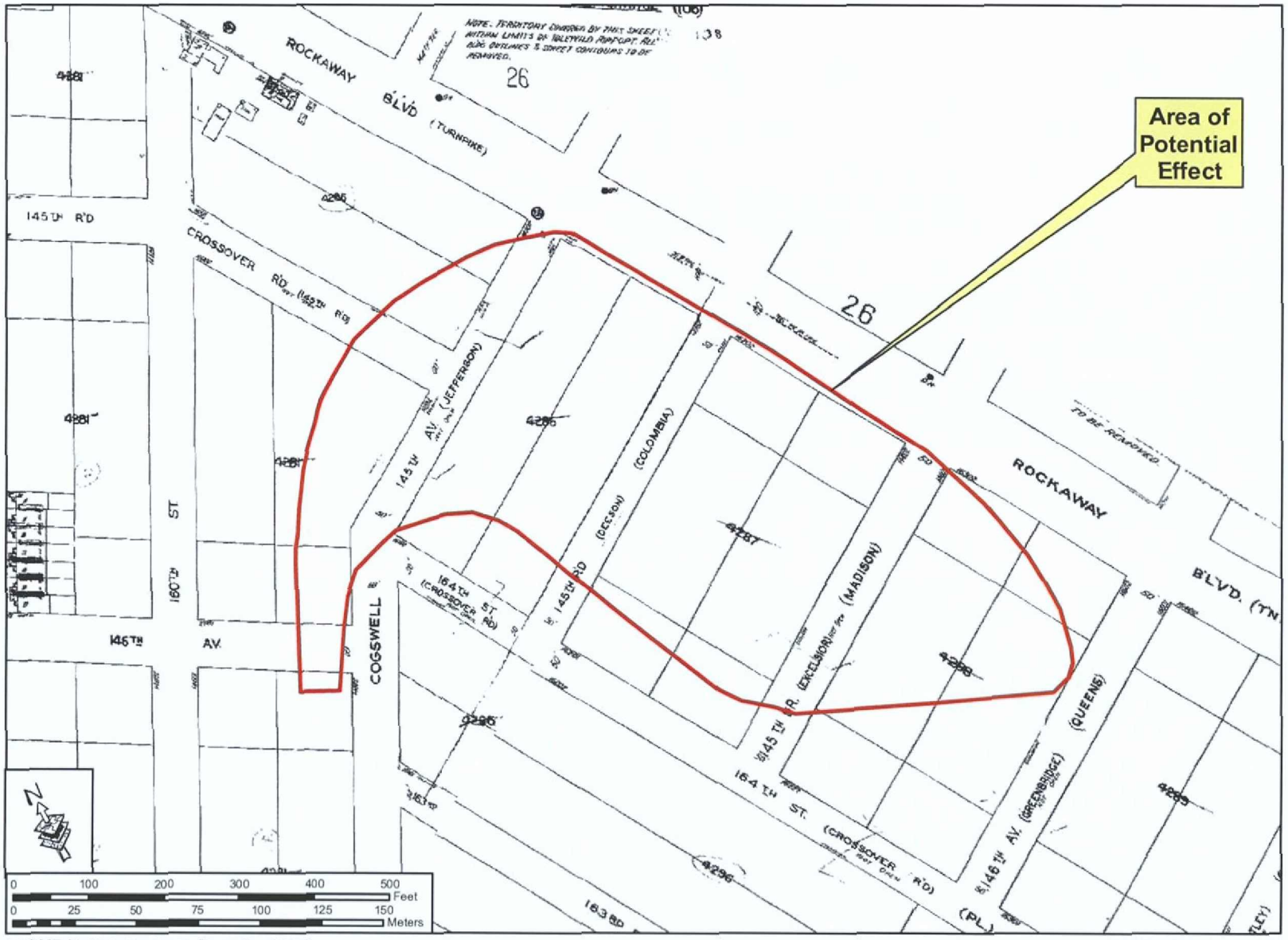

FIGURE 102 Project Area in 1950

SOURCE: Sanborn 1950

IV. ARCHAEOLOGICAL RESOURCE POTENTIAL

Research on the area of the project site and vicinity included background studies at appropriate repositories to collect information on recorded cultural resources for the project site and vicinity and the possible presence of unrecorded cultural resources, as well as a field reconnaissance of the project site. The purpose of the research was to determine on a preliminary basis whether proposed construction activities at the project site would impact any significant or potentially significant archaeological resources or historic structures. Sources for background research included the New York State Museum and NYSHPO files, for information on previously recorded archaeological sites in the project site and vicinity; the Landmarks Preservation Commission of New York City (LPC), for information on recorded historic properties and previous cultural resource studies in the project site and vicinity; and the New York Public Library, for map data and historical documentation on historic use of the project site and vicinity. A search at the Queens County Register for deed information related to the project area prior to its inclusion with the JFK Airport property proved unsuccessful.

A. Archaeological Sites in Project Site and Vicinity

A site file search of New York State Museum and NYSHPO files uncovered no known archaeological sites within a one-mile radius of the project site. No properties that are listed in or considered eligible for listing in the National Register of Historic Places have been identified within the project site. However, four prehistoric sites were identified just outside the project area at distances ranging from 1.05-1.5-miles away. All four were recorded by A.C. Parker in the 1920s, three of which were described as "village" sites and the fourth as "traces of occupation." A fifth site located in the vicinity of Baisley's Pond is reported to have a Paleo component (JMAC 1998:15). In addition, seventeen sites were identified along the Belt Parkway, located 0.3-miles north of the project area during its construction in the 1940s (Boesch 1997:15). Given the presence of five known archaeological sites in the vicinity and the numerous sites located along the Belt Parkway corridor, the project site should be considered to possess at least a moderate potential to contain prehistoric resources.

A number of cultural resource studies have been conducted in the general vicinity of the project area which give an indication of the site potential. A Phase IA/IB archaeological study was conducted on a parcel of land located adjacent west of the project area (JMAC 1997, 1998). This study found the stratigraphy in the area to have consisted of largely undisturbed, natural soils. Fill associated with the grading of a baseball field and with post-demolition grading of the site was encountered in a small number of the excavations. Boring data included in the report shows fill of varying depths (between 1.0-5.0-feet), however, no cultural material was described as being found within the fill, thus the certainty of whether these were in fact, true fill layers cannot be fully determined. Although no prehistoric artifacts were recovered, several intact historic features, were encountered. At least one dates to the earliest historic occupation of the site. Artifacts recovered from these features, such as embossed patent medicine bottles and gray salt-glazed stoneware with an Albany slip are typical of mid 19th-century deposits. In a GEIS study for the New York City Long Range Sludge Management Plan of a 225-acre area along the western edge of JFK Airport, approximately 1.8-miles southwest of the project area, it was determined that fill, if present at all would be minimal (0.0-10.0-feet) and that there was a potential for prehistoric archaeological resources (HPI 1991:12).

B. Project Site Archaeological Potential

An inspection of the project area indicated that the site consists of thick brush and trees with the approximate western third covered with an open, grassy surface (Photos 1-4). The undulating surface and presence of several mature trees within the wooded portion of the lot suggests that little, if any infilling occurred on the site when JFK International Airport (formerly Idlewild Airport) was built in the early twentieth century. This wooded portion is bisected by a paved access road oriented north/south which leads to a small Con Edison switch gear facility. No other surface features were observed, however, the thick underbrush may obscure any low-lying features that may have been present. These features could consist of unmapped outbuildings associated with two 19th-century residential/commercial complexes depicted on period maps (marked Spaulding and Foster) and confirmed by the 1998 archaeological investigations for the FAA building on the adjacent lot. An additional cluster of three structures appear on early twentieth-century maps, one within the project area. Deposits and/or features associated with this building may be present within the footprint

Photo 1: Overview of Project Area, Facing South

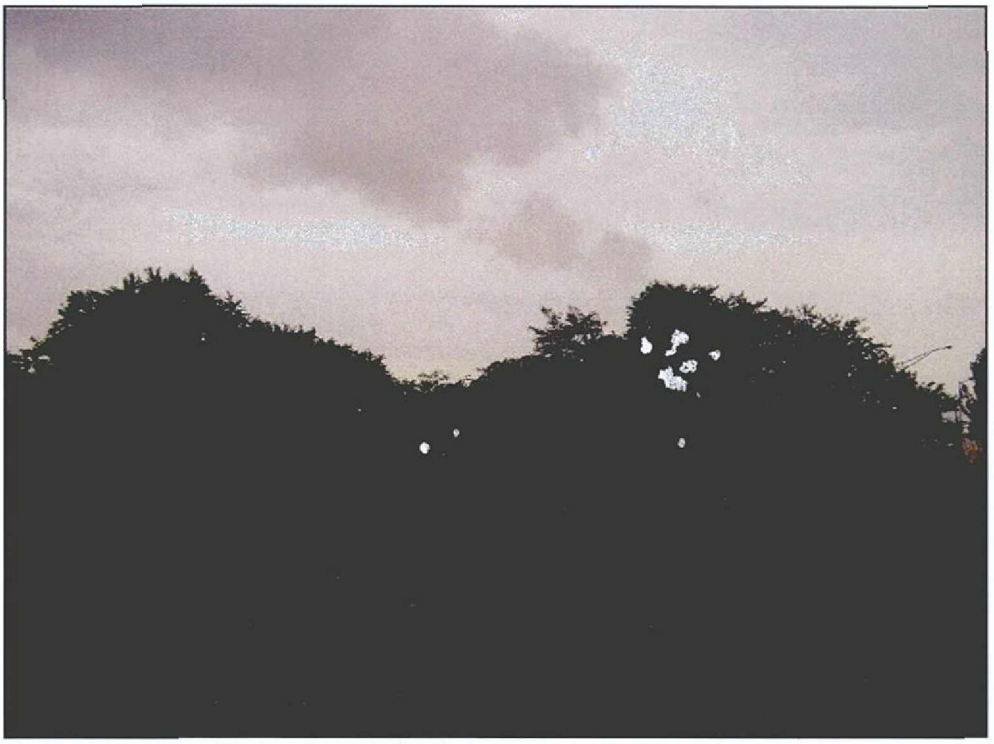

Photo 2: Overview of Project Area, Facing East

Photo 3: Overview of Project Area, Facing West

Photo 4: Overview of Project Area, Facing North.

of the APE. In addition, 19th-century maps indicate the presence of several creeks near the project area, all of which are no longer extant. 20th century aerial views of the project area also indicate the presence of historical wetlands in the western portion; however, no standing water or landscape remnants of ephemeral bodies of water were observed during the site visit. Apparently, the construction of the FAA facility in 2000 replaced the historical wetlands with the paved parking area surrounding the facility.

Previously conducted soil borings were also examined to determine the nature of the APE's soil profile (Appendix A). A total of ten soil borings were excavated in 2001. The soil borings revealed that the APE's soils are uniformly composed of yellowish brown (10YR 5/4) sands extending to a depth of 4-6' below the surface. This sand layer is underlain by an approximately 1' thick very dark gray (N3) clayey silt. This soil profile was seen across the entirety of the tested area, which was centered in the current project's APE. The water table was encountered in several of the soil borings at a depth of 5-6' below the ground surface. No modern refuse was encountered in the soil borings, though shell remnants were encountered in soil borings S-6 and S-7 at depths of 1' and 4' below the ground surface, respectively. The soil borings suggest the entire area tested by the soils borings presents an alluvial soil profile free from historic disturbance.

Therefore, given the apparently undisturbed nature of at least a majority portion of the site, the close proximity to a potable source of water, and the documented presence of both prehistoric and historic groups in the vicinity of the project area, the site is considered to possess at least a moderate potential to contain intact archaeological deposits in subsurface areas below those affected by modern development. The section of the project area covered with asphalt (Photos 5 and 6) may overlie undisturbed soils and deposits sealed by the paved surface covering. Much of the land east and south of the project area was characterized by swamp land and small tributaries at the time of European settlement, which would have necessitated substantial filling in certain areas to create usable land for development. However, the 1844 U.S. Coast Guard map indicates that the project area was situated within a farm field just northeast of the low-lying wetlands and therefore, would have required much less, if any, fill soils. Moreover, any fill soils used on the site would have effectively capped any intact, underlying archaeological deposits and created a protective barrier to disturbances from subsequent construction activities.

Photo 5: Paved Access Road, Facing South

Photo 6: Paved Access Road and Con Edison Parking Area, Facing North

V. RECOMMENDATIONS

The Louis Berger Group, Inc., has completed a cultural resource assessment of the proposed bus parking facility site in the Springfield Gardens neighborhood of Queens County, New York, where MTA/NYCT is planning to construct a new paved bus parking area. The purpose of the investigation was to evaluate the archaeological potential of the site and to determine whether there are any historic structures on or near the site that are eligible for listing in the National Register of Historic Places. Based on the documentary and cartographic research, it is determined that the entire lot may present [illegible] cultural resource constraints on the proposed project.

If project alternatives are developed that include the use of this lot, then a Phase I investigation of the soils below the surface may be required to determine the depth of fill and the presence or absence of any intact archaeological deposits and/or features. The NYSHPO recommends a Phase I survey if a proposed project could result in significant changes in the character of archaeological properties and if such properties may be located in the area of potential effect. Project activities that could result in such changes usually involve earthmoving but may also include construction staging areas and areas from which fill is to be borrowed.

According to the NYSHPO, a Phase IA/IB cultural resource investigation is designed to identify archaeologically sensitive areas and to locate all prehistoric and historic cultural/archaeological resources that may be present within a proposed project site. A Phase IB field investigation includes, but is not limited to, a systematic surface survey, subsurface shovel testing, and remote sensing studies. Standards set by the NYSHPO for subsurface shovel testing consist of the excavation of shovel tests, with a minimum diameter of 30 to 50 centimeters, at a rate of 17 shovel tests per acre, and the screening of all excavated soils through 0.25-inch mesh. Based on the 8.2-acres (357002 square feet) that constitute the APE, a total of 145 shovel tests would be required to adequately determine if any subsurface cultural resources are present within the project area. If no cultural resources identified through the Phase IA/IB survey will be impacted by the proposed project, then no further work is required. If cultural resources identified by the survey are within the proposed project's area of potential effect, further evaluation may be required to determine the potential eligibility of the resources for listing in the State or National Registers of Historic Places.

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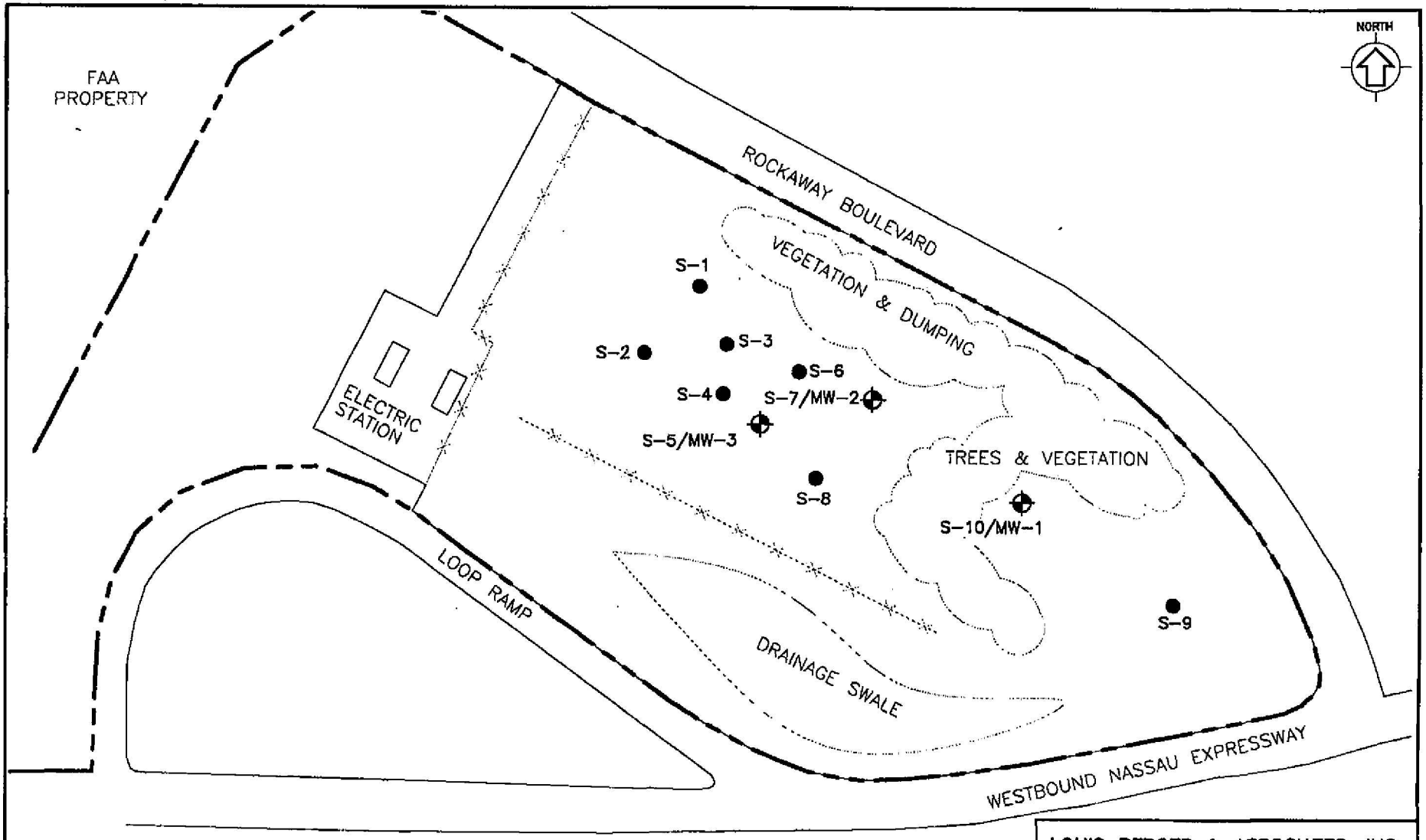
APPENDIX A

Soil Boring Logs

RWB-SP/30MAY01/SP.SCR



LEGEND:

- ——— = SITE BOUNDARY
- ⋱⋱ = CHAIN-LINK FENCE
- ● = SOIL BORING LOCATION (S-1)
- ⊕ = MONITORING WELL LOCATION (MW-2)

LOUIS BERGER & ASSOCIATES, INC.

SITE PLAN
PHASE II – ESA
NYCT
ROCKAWAY BOULEVARD
(BLOCK 14260, PART OF LOT 1)
QUEENS, NEW YORK

Scale: 1"=120' | Date: 5/30/01 | FIGURE 2

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	**Drilling Log** Page 1 of 1	**BORING NO.:** S-1 **WELL NO.:** N/A

CLIENT:	New York Transit Authority	**PROJECT NO:**	JG-1621
PROJECT:	Rockaway Boulevard, Queens, NY	**DATE STARTED:**	4/2/2001
DRILLING CONTRACTOR:	Inland Pollution Services, Inc.	**DATE FINISHED:**	4/2/2001
DRILLING METHOD:	Geoprobe	**DRILLER:**	J. Neri
BOREHOLE DATA		**INSPECTOR:**	J. Dempsey
Diameter (in):	2	**NORTHING:**	N/A
Total Depth (ft):	8.00	**EASTING:**	N/A
Sampler:	Macrocore	**GROUND ELEVATION:**	N/A
Depth to Water (ft):	5	**TOC ELEVATION:**	N/A
Depth to Rock (ft):	N/A		
WELL DATA			
Completion:	N/A		
Total Depth (ft):	N/A		
Screen Length/Slot:	N/A		
Depth to Water (ft):	N/A		
Permit No.:	N/A		

NOTES:

Well Construction	Depth	Lithology	USCS	Sample Interval	Sample Recovery	Blows/6 in	PID (ppm)	Description	Remarks
	0		ML				<1	Dark Yellowish Brown (10YR 4/2) SILT, little fine Sand; plant matter; dry	**Silt (Topsoil)**
			SP					Moderate Yellowish Brown (10YR 5/4) coarse (-) fine SAND, trace Silt; dry	**Sand; Sample S-1A (0.5-1.5 ft)**
			SP					Pale Yellowish Brown (10YR 6/2) coarse (-) to fine SAND, trace fine Gravel, trace Silt; moist	
			SP					Dark Yellowish Orange (10YR 6/6) coarse (-) to fine SAND; moist	
			CL-ML				<1	Dark Gray (N3) Clayey SILT; wet/moist	**Clayey Silt**
	5		ML					Dark Yellowish Brown (10YR 4/2) to Moderate Yellowish Brown(10YR 5/4) SILT, and fine Sand; wet/saturated	▽ **Sandy Silt; Sample S-1B (4.0-5.0 ft)**
			SP-SM					Dark Yellowish Orange (10YR 6/6) coarse (-) to fine SAND, little Silt; saturated	**Sand** **End of Boring at 8 ft**

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	**Drilling Log** Page 1 of 1	**BORING NO.:** S-2 **WELL NO.:** N/A

CLIENT:	New York Transit Authority			**PROJECT NO:**	JG-1621
PROJECT:	Rockaway Boulevard, Queens, NY			**DATE STARTED:**	4/2/2001
DRILLING CONTRACTOR:	Inland Pollution Services, Inc.			**DATE FINISHED:**	4/2/2001
DRILLING METHOD:	Geoprobe			**DRILLER:**	J. Neri
BOREHOLE DATA		**WELL DATA**		**INSPECTOR:**	J. Dempsey
Diameter (in):	2	**Completion:**	N/A	**NORTHING:**	N/A
Total Depth (ft):	8.00	**Total Depth (ft):**	N/A	**EASTING:**	N/A
Sampler:	Macrocore	**Screen Length/Slot:**	N/A	**GROUND ELEVATION:**	N/A
Depth to Water (ft):	6	**Depth to Water (ft):**	N/A	**TOC ELEVATION:**	N/A
Depth to Rock (ft):	N/A	**Permit No.:**	N/A		

NOTES:

Well Construction	Depth	Lithology	USCS	Sample Interval	Sample Recovery	Blows/6 in	PID (ppm)	Description	Remarks
	0		ML				<1	Dark Yellowish Brown (10YR 4/2) SILT, little fine Sand; plant matter; dry	Silt (Topsoil)
			SP					Moderate Yellowish Brown (10YR 5/4) medium to fine SAND, trace Silt; moist	Sand; Sample S-2A (0.5-1.5 ft)
			SP					Moderate Yellowish Brown (10YR 5/4) coarse (-) to fine SAND, trace Silt; moist	
			SP-SM				<1	Moderate Yellowish Brown (10YR 5/4) medium to fine SAND, little Silt; moist	
			ML					Olive Gray (5Y 4/1) SILT, some fine Sand; moist	Sandy Silt
	5		SM					Moderate Yellowish Brown (10YR 5/4) SAND, some Silt; wet/saturated	Silty Sand; Sample S-2B (5.0-6.0 ft) ▽
									End of Boring at 8 ft

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	**Drilling Log** Page 1 of 1	**BORING NO.:** S-3 **WELL NO.:** N/A

CLIENT:	New York Transit Authority	**PROJECT NO:**	JG-1621
PROJECT:	Rockaway Boulevard, Queens, NY	**DATE STARTED:**	4/2/2001
DRILLING CONTRACTOR:	Inland Pollution Services, Inc.	**DATE FINISHED:**	4/2/2001
DRILLING METHOD:	Geoprobe	**DRILLER:**	J. Neri
BOREHOLE DATA		**INSPECTOR:**	J. Dempsey
Diameter (in):	2	**NORTHING:**	N/A
Total Depth (ft):	8.00	**EASTING:**	N/A
Sampler:	Macrocore	**GROUND ELEVATION:**	N/A
Depth to Water (ft):	6	**TOC ELEVATION:**	N/A
Depth to Rock (ft):	N/A		
WELL DATA			
Completion:	N/A		
Total Depth (ft):	N/A		
Screen Length/Slot:	N/A		
Depth to Water (ft):	N/A		
Permit No.:	N/A		

NOTES:

Well Construction	Depth	Lithology	USCS	Sample Interval	Sample Recovery	Blows/6 in	PID (ppm)	Description	Remarks
	0		ML				<1	Dark Yellowish Brown (10YR 4/2) SILT, little fine Sand; plant matter; dry	**Silt (Topsoil)**
			SP					Moderate Yellowish Brown (10YR 5/4) coarse (-) to fine SAND, trace fine Gravel; dry	**Sand; Sample S-3A (0.5-1.5 ft)**
			SP-SM				<1	Moderate Yellowish Brown (10YR 5/4) medium to fine SAND, little Silt; moist	
			ML					Dark Gray (N3) Clayey SILT; moist	**Clayey Silt**
	5		ML					Olive Gray (5Y 4/1) SILT, and medium to fine Sand; wet/saturated	**Sandy Silt; Sample S-3B (5.0-6.0 ft)** ▽
			SM					Dark Yellowish Orange (10YR 6/6) coarse (-) to fine SAND, some Silt, trace fine Gravel; saturated	**Silty Sand** **End of Boring at 8 ft**

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	**Drilling Log** Page 1 of 1	**BORING NO.:** S-4 **WELL NO.:** N/A

CLIENT:	New York Transit Authority	**PROJECT NO:**	JG-1621
PROJECT:	Rockaway Boulevard, Queens, NY	**DATE STARTED:**	4/2/2001
DRILLING CONTRACTOR:	Inland Pollution Services, Inc.	**DATE FINISHED:**	4/2/2001
DRILLING METHOD:	Geoprobe	**DRILLER:**	J. Neri
BOREHOLE DATA		**INSPECTOR:**	J. Dempsey
Diameter (in):	2	**NORTHING:**	N/A
Total Depth (ft):	8.00	**EASTING:**	N/A
Sampler:	Macrocore	**GROUND ELEVATION:**	N/A
Depth to Water (ft):	5	**TOC ELEVATION:**	N/A
Depth to Rock (ft):	N/A		
WELL DATA			
Completion:	N/A		
Total Depth (ft):	N/A		
Screen Length/Slot:	N/A		
Depth to Water (ft):	N/A		
Permit No.:	N/A		

NOTES:

Well Construction	Depth	Lithology	USCS	Sample Interval	Sample Recovery	Blows/6 in	PID (ppm)	Description	Remarks
	0		ML				5	Dark Yellowish Brown (10YR 4/2) SILT, little fine Sand; plant matter; dry	Silt (Topsoil)
			SP					Moderate Yellowish Brown (10YR 5/4) coarse (-) to fine SAND; moist	Sand; Sample S-3A (0.5-1.5 ft)
			SP-SM				<1	Moderate Yellowish Brown (10YR 5/4) medium to fine SAND, little Silt; moist	
			ML					Dark Gray (N3) Clayey SILT; moist	Clayey Silt
	5		ML					Olive Gray (5Y 4/1) SILT, and medium to fine Sand; wet/saturated	▽ Sandy Silt; Sample S-4B (5.0-6.0 ft)
			SM					Dark Yellowish Orange (10YR 6/6) coarse (-) to fine SAND, some Silt; saturated	Silty Sand End of Boring at 8 ft

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	**Drilling Log** Page 1 of 2	**BORING NO.:** S-5 **WELL NO.:** MW-3

CLIENT:	New York Transit Authority			**PROJECT NO:**	JG-1621
PROJECT:	Rockaway Boulevard, Queens, NY			**DATE STARTED:**	4/2/2001
DRILLING CONTRACTOR:	Inland Pollution Services, Inc.			**DATE FINISHED:**	4/2/2001
DRILLING METHOD:	Geoprobe			**DRILLER:**	J. Neri
BOREHOLE DATA		**WELL DATA**		**INSPECTOR:**	J. Dempsey
Diameter (in):	2	**Completion:**	Stick-Up	**NORTHING:**	N/A
Total Depth (ft):	12.5	**Total Depth (ft):**	12	**EASTING:**	N/A
Sampler:	Macrocore	**Screen Length/Slot:**	0.020 PVC	**GROUND ELEVATION:**	N/A
Depth to Water (ft):	6	**Depth to Water (ft):**	5.15	**TOC ELEVATION:**	102.47
Depth to Rock (ft):	N/A	**Permit No.:**	N/A		

NOTES:

Well Construction	Depth	Lithology	USCS	Sample Interval	Sample Recovery	Blows/6 in	PID (ppm)	Description	Remarks
	0		ML				3	Dark Yellowish Brown (10YR 4/2) SILT, little fine Sand;	**Silt (Topsoil)**
			SP					plant matter; dry Moderate Yellowish Brown (10YR 5/4) medium to fine SAND; dry	**Sand; Sample S-5A (0.5-1.5 ft)**
			ML				<1	Dark Gray (N3) Clayey SILT; dry-moist	**Clayey Silt**
	5		SM					Moderate Yellowish Brown (10YR 5/4) fine SAND, and Silt; wet	**Silty Sand; Samples S-5B, DUPE01 (4.0-6.0 ft)**
			SP					Dark Yellowish Orange (10YR 6/6) coarse (-) to fine SAND, trace Silt; saturated	**Sand** ▽

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	PROJECT NO.: JG-5035	BORING NO.: S-5
	Page 2 of 2	WELL NO.: MW-3

Well	Depth	Lith.	USCS	Interval	Rec.	Blows	PID	Description	Remarks
	10								End of Boring at 12.5 ft

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	**Drilling Log** Page 1 of 1	**BORING NO.:** S-6 **WELL NO.:** N/A

CLIENT:	New York Transit Authority			**PROJECT NO:**	JG-1621
PROJECT:	Rockaway Boulevard, Queens, NY			**DATE STARTED:**	4/3/2001
DRILLING CONTRACTOR:	Inland Pollution Services, Inc.			**DATE FINISHED:**	4/3/2001
DRILLING METHOD:	Geoprobe			**DRILLER:**	J. Neri
BOREHOLE DATA		**WELL DATA**		**INSPECTOR:**	J. Dempsey
Diameter (in):	2	**Completion:**	N/A	**NORTHING:**	N/A
Total Depth (ft):	8.00	**Total Depth (ft):**	N/A	**EASTING:**	N/A
Sampler:	Macrocore	**Screen Length/Slot:**	N/A	**GROUND ELEVATION:**	N/A
Depth to Water (ft):	5	**Depth to Water (ft):**	N/A	**TOC ELEVATION:**	N/A
Depth to Rock (ft):	N/A	**Permit No.:**	N/A		

NOTES:

Well Construction	Depth	Lithology	USCS	Sample Interval	Sample Recovery	Blows/6 in	PID (ppm)	Description	Remarks
	0		ML				<1	Dark Yellowish Brown (10YR 4/2) SILT, little fine Sand; plant matter; dry	**Silt (Topsoil)**
			SP					Moderate Yellowish Browm (10YR 5/4) fine SAND; dry	**Sand; Sample S-6A (0.5-1.0 ft)**
			SP					Moderate Yellowish Brown (10YR 5/4) coarse to fine (+) SAND; with 2 in. layer of medium to fine Gravel, coarse to fine Sand, shell fragments; mottled; moist/wet	
			SP				<1	Moderate Yellowish Brown (10YR 5/4) fine SAND; wet	**Sample S-6B (4.0-5.0 ft)**
	5		ML					Dark Gray (N3) Clayey SILT; saturated	**Clayey Silt**
			SP					Moderate Yellowish Brown (10YR 5/4) fine SAND, trace medium Sand; saturated	**Sand** **End of Boring at 8 ft**

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	**Drilling Log** Page 1 of 2	**BORING NO.:** S-7 **WELL NO.:** MW-2

CLIENT:	New York Transit Authority			**PROJECT NO:**	JG-1621
PROJECT:	Rockaway Boulevard, Queens, NY			**DATE STARTED:**	4/3/2001
DRILLING CONTRACTOR:	Inland Pollution Services, Inc.			**DATE FINISHED:**	4/3/2001
DRILLING METHOD:	Geoprobe			**DRILLER:**	J. Neri
BOREHOLE DATA		**WELL DATA**		**INSPECTOR:**	J. Dempsey
Diameter (in):	2	**Completion:**	Stick-Up	**NORTHING:**	N/A
Total Depth (ft):	13.5	**Total Depth (ft):**	13.3	**EASTING:**	N/A
Sampler:	Macrocore	**Screen Length/Slot:**	0.020 PVC	**GROUND ELEVATION:**	N/A
Depth to Water (ft):	5	**Depth to Water (ft):**	4.75	**TOC ELEVATION:**	102.85
Depth to Rock (ft):	N/A	**Permit No.:**	N/A		

NOTES:

Well Construction	Depth	Lithology	USCS	Sample Interval	Sample Recovery	Blows/6 in	PID (ppm)	Description	Remarks
	0		ML				<1	Dark Yellowish Brown (10YR 4/2) SILT, little fine Sand; plant matter; dry	Silt (Topsoil)
			SW					Moderate Yellowish Brown (10YR 5/4) coarse to fine SAND; dry	Sand; Sample S-7A (0.5-1.0 ft)
			SW				<1	Moderate Yellowish Brown (10YR 5/4) coarse to fine SAND; with 2 in. layer of medium to fine Gravel, and coarse to fine Sand; with Shells; wet/saturated	Sand; Sample S-7B (4.0-5.0 ft)
	5		SM					Dark Yellowish Orange (10YR 6/6) medium to fine SAND, some Silt; with 2 in layer of Dark Gray (N3) Clayey SILT; saturated	Silty Sand (with Clayey Silt Layer)
			SP					Moderate Yellowish Brown (10YR 5/4) medium to fine SAND; saturated	Sand
			SP				<1	Moderate Yellowish Brown (10YR 5/4) medium to fine	

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	PROJECT NO.: JG-5035	BORING NO.: S-7
	Page 2 of 2	WELL NO.: MW-2

Well	Depth	Lith.	USCS	Interval	Rec.	Blows	PID	Description	Remarks
								SAND; saturated	
			ML					Dark Gray (N3) Clayey SILT; Saturated	Clayey Silt
			GP					Dark Yellowish Brown (10YR 4/2) medium to fine Gravel, and coarse to fine Sand; with some Shells; saturated	Sandy Gravel (with Shells)
	10		SP					Dark Yellowish Orange (10YR 6/6) coarse (-) to fine SAND; saturated	Sand
									End of Boring at 13.5 ft

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	**Drilling Log** Page 1 of 2	**BORING NO.:** S-8 **WELL NO.:** N/A

CLIENT:	New York Transit Authority			**PROJECT NO:**	JG-1621
PROJECT:	Rockaway Boulevard, Queens, NY			**DATE STARTED:**	4/3/2001
DRILLING CONTRACTOR:	Inland Pollution Services, Inc.			**DATE FINISHED:**	4/3/2001
DRILLING METHOD:	Geoprobe			**DRILLER:**	J. Neri
BOREHOLE DATA		**WELL DATA**		**INSPECTOR:**	J. Dempsey
Diameter (in):	2	**Completion:**	N/A	**NORTHING:**	N/A
Total Depth (ft):	8.00	**Total Depth (ft):**	N/A	**EASTING:**	N/A
Sampler:	Macrocore	**Screen Length/Slot:**	N/A	**GROUND ELEVATION:**	N/A
Depth to Water (ft):	5.5	**Depth to Water (ft):**	N/A	**TOC ELEVATION:**	N/A
Depth to Rock (ft):	N/A	**Permit No.:**	N/A		

NOTES:

Well Construction	Depth	Lithology	USCS	Sample Interval	Sample Recovery	Blows/6 in	PID (ppm)	Description	Remarks
	0		ML				<1	Dark Yellowish Brown (10YR 4/2) SILT, little fine Sand; plant matter; with 3 in of Gravel Fill; dry	**Silt (Topsoil); andGravelFill**
			SP					Pale Yellowish Brown (10YR 6/2) medium to fine SAND; dry	**Sand; Sample S-8A (0.5-1.5 ft)**
	5		SP				<1	Pale Yellowish Brown (10YR 6/2) medium to fine SAND; moist	**Sample S-8B (4.0-5.0 ft)**
			ML					Dark Gray (N3) Clayey SILT; saturated	**Clayey Silt** ▽
			SM					Dark Yellowish Brown (10YR 4/2) fine SAND, and Silt; saturated	**Silty Sand**

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	PROJECT NO.: JG-5035	BORING NO.: S-8
	Page 2 of 2	WELL NO.: N/A

Well	Depth	Lith.	USCS	Interval	Rec.	Blows	PID	Description	Remarks
			SM					Moderate Yellowish Brown (10YR 6/6) medium to fine SAND, some Silt; saturated	End of Boring at 8 ft
			SW					Moderate Yellowish Brown (10YR 6/6) coarse to fine SAND, little Silt, trace fine Gravel; saturated	Sand

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	**Drilling Log** Page 1 of 1	**BORING NO.:** S-9 **WELL NO.:** N/A

CLIENT:	New York Transit Authority			**PROJECT NO:**	JG-1621
PROJECT:	Rockaway Boulevard, Queens, NY			**DATE STARTED:**	4/3/2001
DRILLING CONTRACTOR:	Inland Pollution Services, Inc.			**DATE FINISHED:**	4/3/2001
DRILLING METHOD:	Geoprobe			**DRILLER:**	J. Neri
BOREHOLE DATA		**WELL DATA**		**INSPECTOR:**	J. Dempsey
Diameter (in):	2	**Completion:**	N/A	**NORTHING:**	N/A
Total Depth (ft):	8.00	**Total Depth (ft):**	N/A	**EASTING:**	N/A
Sampler:	Macrocore	**Screen Length/Slot:**	N/A	**GROUND ELEVATION:**	N/A
Depth to Water (ft):	5	**Depth to Water (ft):**	N/A	**TOC ELEVATION:**	N/A
Depth to Rock (ft):	N/A	**Permit No.:**	N/A		

NOTES:

Well Construction	Depth	Lithology	USCS	Sample Interval	Sample Recovery	Blows/6 in	PID (ppm)	Description	Remarks
	0		ML				<1	Dark Yellowish Brown (10YR 4/2) SILT, little fine Sand; plant matter; dry	**Silt (Topsoil)**
			SP					Moderate Yellowish Brown (10YR 5/4) fine SAND; dry/moist	**Sand; Sample S-9A (0.5-1.5 ft)**
			SM					Dark Yellowish Brown (10YR 4/2) fine SAND, and Silt; moist	**Silty Sand**
	5		SM				<1	Dark Yellowish Orange (10YR 6/6) fine SAND, some Silt; saturated	**Sample S-9B (4.0-5.0 ft)** ▽
									End of Boring at 8 ft

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	**Drilling Log** Page 1 of 2	**BORING NO.:** S-10 **WELL NO.:** MW-1

CLIENT:	New York Transit Authority			**PROJECT NO:**	JG-1621
PROJECT:	Rockaway Boulevard, Queens, NY			**DATE STARTED:**	4/3/2001
DRILLING CONTRACTOR:	Inland Pollution Services, Inc.			**DATE FINISHED:**	4/3/2001
DRILLING METHOD:	Geoprobe			**DRILLER:**	J. Neri
BOREHOLE DATA		**WELL DATA**		**INSPECTOR:**	J. Dempsey
Diameter (in):	2	**Completion:**	Stick-Up	**NORTHING:**	N/A
Total Depth (ft):	20.5	**Total Depth (ft):**	20.3	**EASTING:**	N/A
Sampler:	Macrocore	**Screen Length/Slot:**	0.020 PVC	**GROUND ELEVATION:**	N/A
Depth to Water (ft):	5	**Depth to Water (ft):**	7.25	**TOC ELEVATION:**	105.4
Depth to Rock (ft):	N/A	**Permit No.:**	N/A		

NOTES:

Well Construction	Depth	Lithology	USCS	Sample Interval	Sample Recovery	Blows/6 in	PID (ppm)	Description	Remarks
	0		ML				<1	Dark Yellowish Brown (10YR 4/2) SILT, little fine Sand; plant matter; dry	**Silt (Topsoil)**
			SP					Moderate Yellowish Brown (10YR 5/4) fine SAND, trace Silt; dry/moist	**Sand; Sample S-10A (0.5-1.5 ft)**
			SP				<1	Moderate Yellowish Brown (10YR 5/4) fine SAND; moist/saturated	**Sample S-10B (4.0-5.0 ft)**
	5								▽
			ML					Dark Gray (N3) Clayey SILT; saturated	**Clayey Silt**
	▽		SP					Moderate Yellowish Brown (10YR 5/4) medium to fine SAND; saturated	**Sand**
			SP				<1	Moderate Yellowish Brown (10YR 5/4) medium to fine	

The Louis Berger Group, Inc. 30 Vreeland Road, Building A Florham Park, NJ 07932	PROJECT NO.: JG-5035	BORING NO.: S-10
	Page 2 of 2	WELL NO.: MW-1

Well	Depth	Lith.	USCS	Interval	Rec.	Blows	PID	Description	Remarks
								SAND, saturated	
			SM					Dark Yellowish Brown (10YR 4/2) fine SAND, and Silt; with 2 in layer of Dark Gray (N3) Clayey SILT; saturated	Silty Sand (with Clayey Silt layer)
			SP					Dark Yellowish Orange (10YR 6/6) coarse (-) and fine SAND; saturated	Sand
	10								
	15								
	20								End of Boring at 20 ft